



**ABOVE** • No, that's not R2-D2, but it is a robot and it works in the Clinical Center. See story on p. 12.

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# nih record

## Disarming Laughter

### Dalai Lama Visits NIH, Lectures in Natcher

By Rich McManus

A crowd of about 1,000 NIH'ers filled Kirschstein Auditorium on Mar. 7 to hear His Holiness the Dalai Lama give the annual J. Edward Rall Cultural Lecture. But it was the Dalai Lama's laughter—a sudden, prolonged, heartfelt and guttural chortle—that disarmed the room.

The laugh came frequently, too—a sort of instructive laughter-in-italics that implied permission to laugh along. It was the laughter of the barbershop, the kitchen, the loading dock—work-site laughter that bonds colleagues and widens the plank all sentient creatures walk.



*His Holiness the Dalai Lama (r) and NIH director Dr. Francis Collins*

“Indeed I am extremely happy to visit this famous institution,” said the Dalai Lama,

SEE **DALAI LAMA**, PAGE 6

## ‘The Sweet o’ the Year’

### NIH Prepares Campus for Spring

By Belle Waring

Shakespeare called this season “the sweet o’ the year.”

Nothing like a real winter to make you appreciate a real spring—and the folks who monitor and maintain our grounds.

Studies show that attentiveness to one’s surroundings can improve concentration and a sense of connectedness. Here’s something to contemplate as the Office of Research Facilities prepares NIH for spring.

“This is a unique campus,” says ORF project officer Canute “Ken” Hunter as he eases his pickup out of Bldg. 22 onto Center Dr. During winter, the U-shaped building stores heavy trucks and front loaders plus 300 tons of sand and salt.

With his colleague Fred Greene, Hunter oversees 4 contracts with crews for snow removal, landscape, pavement maintenance and garage/

SEE **SPRING**, PAGE 8

## Bahama Beat

### History Professor’s Inspiring Talk Celebrates Black History Month

By Dana Steinberg

“Everyone has a story,” says Dr. Crystal deGregory. “Make yours matter.”

deGregory’s story begins in Freeport, Bahamas, where she was born and reared. She arrived in the U.S. 15 years ago after a chance encounter with a college recruiter led her to Fisk University, a historically black college in Nashville. A partial scholarship and her mother’s blessing made it possible for her to attend college. The experience inspired her to become an ardent advocate for black college education and expanded opportunities for minorities.



*Dr. Crystal deGregory*

SEE **BLACK HISTORY**, PAGE 4



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## briefs

### Office of Equal Opportunity and Diversity Management Is Now EDI

Over the past 2 years, the Office of Equal Opportunity and Diversity Management has gathered feedback on how to continue its work while further strengthening NIH's diversity and inclusion efforts. OEODM conducted listening sessions, consulted with senior leadership and solicited input from employees. As a result, OEODM is being renamed the Office of Equity, Diversity and Inclusion, or EDI.

Equity reflects the vision of a fair and impartial environment. Diversity encompasses acceptance and respect, recognizes that each individual is unique and affirms individual differences. Inclusion cultivates a culture that connects each employee to the organization and encourages collaboration, flexibility and fairness.

The new office unveiled changes to the NIH community during EDI Week, Mar. 24-27. For more information, visit <http://oeodm.od.nih.gov/index.htm>.

### STEP Forum on Using Games for Health

The staff training in extramural programs (STEP) committee will present "Got Game? Serious Fun for Serious Health," on Thursday, Apr. 10 from 9 to 11 a.m. in Lister Hill Auditorium, Bldg. 38A.

Games on computers, cell phones and other electronic devices can be important tools for improving health across the lifespan. How do games help promote healthy behaviors among children and their families? Could games improve cognitive function in the aging population? Research is providing evidence that games are effective for managing illness and chronic conditions, as well as maintaining a healthy lifestyle. This forum will address these issues as well as how games may affect your health in the future.

### Next Protocol Navigation Lecture, Apr. 7

The IRP Protocol Navigation Training Program Seminar Series continues with a lecture on Monday, Apr. 7 from 2 to 3 p.m. in Bldg. 50, Conf. Rm. 1227/1328. The program is a trans-NIH effort to develop resources and tools and to provide training for intramural staff and contractors involved in protocol development, writing, coordination and management. Jennifer Morris, NINDS PTMS liaison, will present "NIH Protocol Tracking and Management System (PTMS): What's New and What's Next for 2014?" For more information, contact Beverly Barham, (301)

594-2494, [bbarham@mail.nih.gov](mailto:bbarham@mail.nih.gov) or Marcia Vital, (301) 451-9437, [vitalm@mail.nih.gov](mailto:vitalm@mail.nih.gov).

### NIH Supply Center Offers Quick Purchases

The NIH Supply Center, located in Gaithersburg, provides medical, laboratory and general supplies through consolidated, streamlined acquisition methods. The NIH-SC acquires supplies from a variety of sources—many of which are small businesses, veteran-owned, disabled veteran-owned and women-owned—and attempts to obtain the best price, quality and delivery.

In many cases, the NIH-SC offers a better price than can be obtained by going directly to a vendor because bulk purchases for large quantities provide deeper discounts. Other advantages of the NIH-SC include: no state taxes; no delivery charges; no minimum order quantity or dollar limit; less time ordering supplies through NBS than with a government purchase card; minimal administrative time spent on reconciliation and record-keeping.

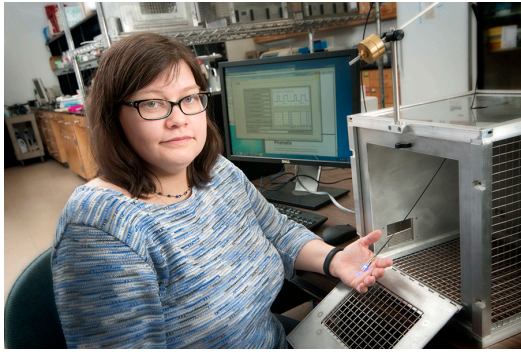
The Supply Center reminds customers that store hours have changed for the two Self-Service Supply stores on the main campus. Effective Mar. 18, store hours in Bldgs. 10 and 31 are 9 a.m. to 4 p.m. For more information, email [nihsupplycenter@od.nih.gov](mailto:nihsupplycenter@od.nih.gov) or call (301) 496-3517.

### Arora Joins Staff at NIGMS

*Dr. Krishan Arora recently joined NIGMS as a program director in the Division of Training, Workforce Development and Diversity, where he administers two components of the Institutional Development Award (IDeA) program. He leads the IDeA Networks of Biomedical Research Excellence and manages a portfolio of Centers of Biomedical Research Excellence grants. Before joining NIGMS, Arora served as an NIH program director for 14 years, first in the Division of Research Infrastructure at the former NCRR and later in the Division of Scientific Programs at NIMHD. Earlier, he was a senior staff fellow at NICHD in what was then the Endocrinology and Reproduction Research Branch. He earned a B.Sc. in biology from Punjab University, an M.Sc. in biochemistry from Punjab Agricultural University and a Ph.D. in biochemistry from the Australian National University. He conducted postdoctoral research at Johns Hopkins University School of Medicine.*







*Dr. Caroline E. Bass of the University at Buffalo is using light to influence brain cells.*

## Researchers Shine Light on Potential Approach for Treating Alcoholism

“And then there was light.” And maybe an end to alcoholism?

NIH-supported scientists have demonstrated that stimulating specific brain cells of small animals with high-intensity light alters nerve cell activity and puts the brakes on alcohol consumption. If applicable to humans, this could point the way to strategies for treating alcohol abuse. The technique may also lead the way to new treatment approaches for other brain-associated disorders such as Parkinson’s disease, schizophrenia and various types of drug addiction, the scientists speculate.

Alcoholism and alcohol-associated disorders pose major health risks. Globally, alcohol use is the fifth leading risk factor for premature death and disability. Further, according to the National Institute on Alcoholism and Alcohol Abuse, drinking too much—on a single occasion or over time—can lead to accidents and dependence, damage organs, weaken the immune system and contribute to cancers. Also, imbibing excessively can worsen existing health problems, adds NIAAA, which reports that an estimated 17 million Americans have an alcohol use disorder (AUD)—a medical term that includes both alcoholism and harmful drinking that does not reach the level of dependence.

Binge drinking—consuming 5 or more drinks within 2 hours for men and 4 or more drinks during the same time for women—is extremely risky. While popular among adolescents and young adults, bingeing is common in all age groups. According to the Centers for Disease Control and Prevention, binge drinking is the most common pattern of alcohol abuse in the United States and likely the most perilous.

Numerous medications for treating alcohol dependence have become available in recent years and ongoing research continues to devel-

op and explore new medications and other treatment approaches to expand treatment options for people with alcohol problems.

The current study is one new approach under investigation to advance our understanding of what happens in the brain in individuals with AUDs and to help develop potential treatments. With funding from two NIH sources—NIAAA and the National Institute on Drug Abuse, Dr. Caroline E. Bass, assistant professor of pharmacology and toxicology at the University at Buffalo, Evgeny Budygin from Wake Forest University and their colleagues investigated the effect of optogenetics—a technique that uses light to alter the activity of specific brain cells—on alcohol intake in rats that had been trained to consume alcohol in a way that parallels binge-drinking in humans.


“Specifically, what we did was to create a virus that delivers a light-sensitive gene which stimulates certain dopamine [a key brain chemical] neurons in a precise pattern at low, but prolonged levels,” Bass explained. “This resulted in the complete cessation of drinking behaviors in the rodent, which persisted even after the brain stimulation ceased.”

The beauty of optogenetics, Bass noted, is that it enables the scientist to stimulate one type of nerve cell at a time, unlike electrical brain stimulation, “which does not discriminate and thus affects all brain cells. The brain has many types of neurons and so optogenetics can be used to figure out which kind is contributing to a behavior or is malfunctioning in a disease.”

Development of such approaches is in sync with the Obama BRAIN Initiative, Bass added. She said optogenetics also lends itself to studying other disorders.

Meanwhile, a key question remains—why did the animals stop drinking? Bass said her team doesn’t fully understand the mechanism involved, though they think one likely scenario may be that dopamine spikes that normally occur with drinking cues (which initiates drinking) may be drowned out by the light treatment. “The dopamine release induced by the cues would be like throwing sand on a beach and, in this case, without the cues, the rats won’t start drinking.”

The investigators are cautiously optimistic that their animal research and optogenetics in general could point the way toward treatment options not only for alcoholism, but also for other brain-mediated conditions. Bass concludes that the ability to expose important brain pathways as targets for a drug, behavioral or biological treatment will probably yield the greatest clinical impact, though only after obstacles for treating humans (e.g., getting light into the human brain and targeting specific neurons) can be overcome.

The research was reported in a recent issue of *Frontiers in Behavioral Neuroscience*. Co-authors include Dr. Jeffrey Weiner, director of the NIAAA-funded Translational Centers for the Neurobehavioral Study of Alcohol. 

## Overweight Male Volunteers Needed

Healthy volunteers are needed to participate in a study to collect information about changes in your energy expenditure when exposed to different environmental temperatures. Currently, we are seeking Caucasian men ages 18-35 with a BMI (body mass index) of 30-40 kg/m<sup>2</sup>. BMI may be calculated with the formula found at [www.nhlbi.nih.gov/guidelines/obesity/BMI/bmicalc.htm](http://www.nhlbi.nih.gov/guidelines/obesity/BMI/bmicalc.htm). The study requires a 2-week inpatient stay at the Clinical Center. Compensation is provided. Call (301) 594-6799 for more information. Refer to study 12-DK-0097.

## BLACK HISTORY

CONTINUED FROM PAGE 1

### Right:

*"I believe in the transformative power of history and of education," said deGregory. "I've been a witness to, as well as the beneficiary of, how the two can come together to change lives."*

PHOTOS: ERNIE BRANSON

Moved by the stories of black college alumni, many of whom were instrumental in the civil rights movement, deGregory founded and runs HBCUstory, Inc., an advocacy initiative dedicated to past and present narratives from historically black colleges and universities.

"These schools exist because someone else sacrificed so they could exist...so they could strive and survive for future generations," said the sprightly deGregory during the African-American History Month Lunch and Learn event on Feb. 27 in Bldg. 1's Wilson Hall.

On HBCUstory.com, alumni are encouraged to share their stories and honor those who helped them attain their goals. deGregory paid homage to one such hero, professor emeritus Leslie Morgan Collins, who taught English and the Harlem Renaissance at Fisk for 63 years and left an indelible impression on her and countless other students. Collins passed away days before the lecture at age 99.

Displaying her passion for history, deGregory described how the civil rights struggle in America was intertwined with the struggle for civil rights and nationhood in her native Bahamas. The story, she said, began with two men, Dr. Martin Luther King, Jr., and Sir Lynden Oscar Pindling, born two nations and one year apart. Pindling, considered the founding father of the Bahamas, was elected premier in 1967 and led his nation to independence from Britain in 1973. He then served as prime minister from that year until 1992.

The difficult economic and social conditions of blacks in the American south were shared across the African diaspora, including in the fledgling Bahamas. In response to this injustice, by the mid-20th century, a political and social movement was stirring in the Bahamas, much as it had been in America. Pindling, influenced by King's nonviolent activism, adopted these same peaceful principles as he guided his nation to freedom.

Last year, the Bahamian government passed legislation establishing a new holiday, National Heroes Day, to be celebrated on Oct. 12, which deGregory called a fitting tribute to the black political leaders whose efforts created an independent Bahamas.

deGregory, who received her master's and doctoral degrees from Vanderbilt, now teaches history at Tennessee State University.



"I believe in the transformative power of history and of education," she posted on her web site. "I've been a witness to, as well as the beneficiary of, how the two can come together to change lives." 📌



### NIDA Mourns Denisco's Passing

Dr. Richard Denisco, a medical officer at NIDA, died recently from complications related to heart disease.

He joined NIDA's Services Research Branch in the Division of Epidemiology, Services and Prevention Research in September 2005. He provided leadership for scientific initiatives emphasizing the delivery of smoking cessation strategies, treatment of chronic pain, reduction of prescription drug abuse and the training of physicians to effectively address addiction. He was instrumental in the NIDAMED initiative encouraging physicians to screen patients for substance abuse and was NIDA's medical expert contributing to development of the NIH Pain Consortium Centers of Excellence for Pain Education.

Denisco was an active member of several NIH and federal groups focused on translating research into policies and practices to improve the lives of patients. He received many accolades for his work including two NIH Director's Awards for projects related to physician education.

His medical degree was from the University of Florida and he was board-certified in anesthesiology and pain medicine. He also received an M.P.H. from Bloomberg School of Public Health at Johns Hopkins University.

## Antibiotic Overuse in Childhood May Increase Risk of Obesity

By Eric Bock

Over-prescribing antibiotics might upset the balance of microorganisms in the digestive tract and lead to serious health problems. So believes Dr. Martin J. Blaser, who gave a Contemporary Clinical Medicine: Great Teachers Grand Rounds Lecture in Lipsett Amphitheater on Feb. 12.

Every person is home to trillions of bacteria and other single-celled organisms, said Blaser, director of the Human Microbiome Program at New York University's Langone Medical Center. There are at least 10 times as many microbes as there are human cells. These microbes contain a combined total of 2 million unique genes—perhaps more.

Exposure to microbes begins during birth, Blaser explained. These microbes, mostly bacteria, colonize every part of the body—the skin, the mouth and the digestive tract. Microbes continue to diversify until babies are about 3 years of age.

“These first 3 years of life are when the microbiota is most dynamic in humans,” said Blaser. “It’s also the time when babies are developing their metabolism, immunity and cognition.”

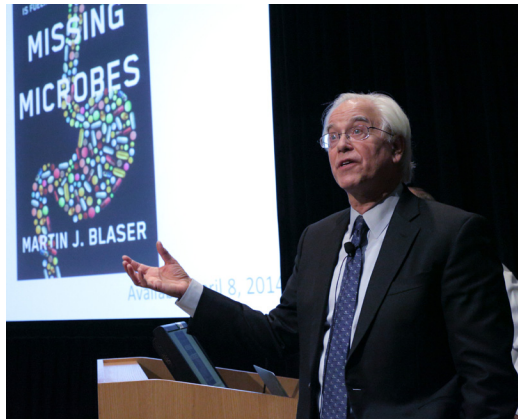
Microbes have coevolved with humans over thousands of years, he said. Take, for example, *Helicobacter pylori*, a spiral-shaped bacteria found in the mucus lining the stomach. Since 1982, *H. pylori* has been associated with peptic ulcer disease.

In fact, scientists believe that *H. pylori* has colonized humans for at least 100,000 years. Until recently, Blaser said, *H. pylori* colonized just about every human stomach. Today, the bacteria is found in only 6 percent of children. Blaser believes antibiotic use may explain part of the disappearance of this bacteria from human stomachs.

“We know that there have been changes in physiology from the *H. pylori*-colonized stomach to the *H. pylori*-free stomach,” said Blaser. He noted that in the absence of *H. pylori*, the incidence of peptic ulcer disease decreased. He also noted there has been an increase in acid reflux.

Blaser also believes that antibiotic use may help to account for the dramatic rise in the obesity rate in the United States since 1990.

Back then, 12 percent of the population was overweight. Today, almost a third of the population is overweight. He noted that, if children



*Dr. Martin J. Blaser thinks Americans could use fewer antibiotics. “My guess is that we can markedly reduce antibiotic use in this country without undue harm to human health,” he said.*

are overweight by age 5, they tend to stay overweight for the rest of their lives.

In the 1940s, he said, farmers discovered that livestock gained weight faster when fed low doses of antibiotics. The youngest livestock grew fastest when given antibiotics. Blaser suspects this increased weight gain may be due to more than eliminating the damage of disease-causing organisms.

“This suggested to me that we’re looking at a developmental phenomenon,” said Blaser.

To investigate his hunch, Blaser’s students fed mice antibiotics for their entire lives. In one study, they observed that a continuous diet of low-dose antibiotics changed the mice’s fat composition. In another, his team found that mice that were fed a high-fat diet and low-dose antibiotics gained even more weight than mice fed a high-fat diet and not given antibiotics.

Children, however, don’t receive low-dose antibiotics. According to Blaser, they receive high-dose antibiotics to treat ear infections, for example. A student in Blaser’s lab fed young mice high-dose antibiotics at three different intervals early in their development to mimic doses that children receive. The student found that three doses early in life were sufficient to increase the mice’s fat tissue well beyond the last dose of antibiotics.

Blaser thinks Americans could use fewer antibiotics. In Sweden, antibiotic use is lower than in the U.S, yet there are no epidemics. “My guess is that we can markedly reduce antibiotic use in this country without undue harm to human health,” he said. ●





## DALAI LAMA

CONTINUED FROM PAGE 1

### **Above, from 1:**

*The Dalai Lama embraces Mary Cassell, a 13-year-old patient with cerebral palsy, as her mother Susan Cassell looks on.*

*The Dalai Lama spoke for the first half of his Rall lecture, then took questions from NIH director Dr. Francis Collins.*

### **Below:**

*The Dalai Lama gestures to a friend in the audience as he makes a point during his talk.*

PHOTOS: ERNIE BRANSON

seated on stage with NIH director Dr. Francis Collins on his right and an interpreter, infrequently consulted, on his left. "I feel honored...What I have learned," he said, pointing to his head, "is [that] the controller is here. I want to know more how it works."

Speaking on the topic, "The Role of Science in Human Flourishing," he added, "Science is truly making contributions for well-being and care... it is really wonderful." Keenly interested in science since he was a child, the Dalai Lama said he preferred taking things apart and putting them back together to studying books. His translator explained, "He dismantled things to see how they work." And the Dalai Lama loosed a laugh.

It was during a visit to a hydroelectric plant near Beijing in 1954 that he realized "I loved meeting with scientists. They did not care about nationality, or color, or believer, or non-believer. It was wonderful."

He returned repeatedly to the theme of oneness and to the danger of concepts that separate man from man. "Regimes are troublemakers," he warned.

Collins explained that the Dalai Lama had been given drawings made by youngsters at the Children's Inn at NIH; the holy man embraced them

for illustrating the concept of one world. "The sense of oneness of human beings—I'm one of them," he said. "I have totally dedicated my life to showing" that idea.

The Dalai Lama said it was a hopeful sign that science cares nothing for an individual's faith, race, color or nationality and applauded its international spirit. But not all science is good, he said. "Nuclear weapons create a lot of fear...Genuine peace must come from love, not fear."

He also observed, "You might be a wonderful scientist, but not necessarily a very happy person." Stress, competitiveness and jealousy can poison scientific pursuit, he said. "Scientific knowledge alone will not bring inner peace."

Inner peace must come on its own, he counseled, and results when mankind relies on its innate goodness, intelligence and compassion. He predicted that late this century, science will be able to look deeply into consciousness, mind and emotion, thereby becoming more complete.

"I think you can contribute," he said, gesturing at Collins with a grin.

The director then posed a series of questions submitted by employees.

"If neuroscience could find the basis of conscious-







At left, the Dalai Lama exhibits his compassion in a brief visit with patient Robyn Painter. At right, he drapes a kata, or scarf, around Collins' neck. "Very tall," His Holiness remarked.

ness, how would that change your view of the mind?" Collins asked.

The Dalai Lama said he practiced not only Buddhist, but also ancient Indian meditation, progressing from mindfulness to analytic meditation, and assured Collins that one could keep one's mental faculties sharp even into old age through such training. At which point he grasped Collins' arm and guffawed.

"A happier person, a happier humanity," has to be the goal of meditation, said the Dalai Lama. "The mind is quite neutral." He said that a mind trained to look objectively is a good thing, and that an open, unbiased mind is an unconflicted mind.

"A scientist has a very open mind, with skepticism and doubt, which are highly necessary," he said approvingly.

Asked whether science can explain altruism, the Dalai Lama said that science is good at quantifying material things such as atoms and genomes, but predicted it won't have much to say about consciousness until the latter part of the century.

As to generosity, he advised using common sense. "It is not necessary to ask the scientist," he said. "Learn from mother." A mother's love is crucial, "immensely important to proper development," he said.

He recalled the lessons of his friendship with

biologist Robert Livingston, who explained to the Dalai Lama the importance of the first few weeks post-birth when the physical and emotional bond between mother and child is established. The brain itself does not develop properly absent this bond, he said.

This bond precedes religion or education, he added. The trust it forms provides a lifelong foundation for love and friendship.

"Without that, even a very smart mind will try to cheat or take advantage," he warned. The Dalai Lama said even animals know when a human being acts with sincerity. The human animal is acquainted with anger, hatred and fear, "but that is not the dominant—the dominant is love." Asserting that basic human nature is positive, he smiled again at Collins and joked, "I'm ready to argue!"

Asked if he ever loses his temper or has a bad day, the Dalai Lama said, "Of course! Quite often I lose my temper, usually over small, small things." On large matters, however, it happens rarely, he said.

The final question dealt with the dialogue between science and religion.

"Right from the beginning I made clear that I reject the division between Buddhism and science," said the Dalai Lama. He said his religion focuses on mind and emotion, not on good versus evil, and acknowledged the "immense benefit of learning from science." But he said that centuries of practicing meditation have given the Buddhist world an advantage over current science in some areas: "Western psychology is like kindergarten compared to ancient Indian meditation."

As he rose to leave the stage, the Dalai Lama presented Collins with a long white kata, or scarf. It is a traditional gift, symbolizing purity and compassion. "Very tall," he noted, reaching up to drape it around the director's neck. "Thank you, bye-bye, bye-bye," he said, bowing respectfully to the crowd. 🙏



#### Above:

Laughter was common during the Dalai Lama's visit, as evidenced here in an exchange in the movement analysis laboratory at the Clinical Center.

#### Below, l:

The Dalai Lama is impressed by the strength of NIH Police Ofcr. Karl Hayes.





## SPRING

CONTINUED FROM PAGE 1

### ***Above, from 1:***

*Lynn Mueller, NIH's chief landscape architect, with a Montgomery County champion tree, a Japanese Zelkova near Bldg. 1*

*ORF project officers Canute "Ken" Hunter (l) and Fred Greene helped steer us through a harsh winter.*

PHOTOS: ERNIE BRANSON, LYNN MUELLER, BELLE WARING

street sweeping both at the main campus and the NIH Animal Center (NIHAC)-Poolesville.

Although NIHAC has a pond, lagoon and stream, that campus is not heavily landscaped, while NIH Bethesda has:

- 308 acres
- 179 landscaped acres
- 20 acres of shrubs and ground-cover beds
- 22 acres of meadows and reforestation
- 2 streams
- Stoney Creek Pond
- Wildlife

"We work from a matrix," says Hunter, "starting from mid-March. We prepare the turf for mowing, prepare the beds for mulching, edge the shrub and ground-cover beds and remove weeds. We have 3 weeks to address all that."

Reflective fiberglass stakes placed last October to mark curb limits and hydrants in deep snow are pulled up, salt hoppers and truck beds are cleaned and snow-removal equipment is returned to off-campus sites.

The entire campus is then swept of sand, salt and de-icer, a process repeated monthly thereafter as the campus blooms.

NIH Bethesda has more than 8,000 trees, all tagged, cataloged in a database and visually inspected twice yearly while "leaf-on" and "leaf-off."

"We have a nice arboretum," says ORF landscape architect Lynn Mueller, "with 167 different species, 101 of them native." Five trees are "Montgomery County champions," the largest specimens of their respective species:

- Japanese Zelkova southwest of Bldg. 1
- Black willow behind 38A
- Golden raintree north of 12A
- Carolina hemlock east of Bldg. 14 complex
- Weeping willow east of MLP-10

"Snags" are dead and yet structurally stable trees whose branches are removed for safety. They look like telephone poles that have lost their way.

"Snags attract woodpeckers to make nests," says Mueller. "Woodpeckers are great consumers of insects and help eliminate the use of insecticides...It makes a much more balanced landscape from the ground into the canopy."

There are also courtyard gardens in Bldg. 10

### **When Winter Hits**

When winter weather hits, "we deploy a snow plan," says Ken Hunter, who oversees contract crews at the main campus and NIHAC in Poolesville. "The staff stays until it's over." They begin by spreading a salt/sand mix over 12 miles of roadways, 42 acres of parking lots and 26 miles of sidewalks at NIH Bethesda. Seven acres of roads and parking space at NIHAC in Poolesville must be cleared and treated too.

The winter of 2013-2014 was harsh, with over 26 storm responses: "We had ice, ice-rain, sleet mixed with snow and straight snow," says his colleague Fred Greene. "We try to be as environmentally friendly as we can, but we're concerned with patients and people going to work."





*At left, the bays of Bldg. 22 store snow removal equipment plus hundreds of tons of sand and salt. At right is a front loader: essential equipment for the winter of 2013-2014, with more than 26 winter storm responses.*

and an herb garden east of Bldg. 38. Landscaping crews maintain these and other interior plantings.

In the southeast corner of campus is Stoney Creek Pond. Built in partnership with Montgomery County, the pond draws from a 204-acre watershed from much of downtown Bethesda and part of campus. Landscaping here supports a balanced ecosystem.

The main stormwater outfall is the NIH stream flowing northeast past Bldg. 21, collecting drainage from over 210 acres and then slipping under Rockville Pike. The stream drain must be kept clear of debris.

Environmentally appropriate de-icer was used to treat over 650 building entrances, with priority to the Clinical Center, Children's Inn and Family Lodge. "We clear loading docks for the animal buildings," Greene continues. "That's years of research there. We pretreat and monitor freeze-over icy spots and trip hazards. And we get customer requests."

"The snow-removal contractors stay all night for the duration [of an event]," says Hunter. "ORF building engineers stand by to maintain HVAC fans, to make sure there's a proper air flow and comfort for patients and animals."

"We have to stay with our building," says Dwight Brown, an ORF engineer who covers Bldg. 31. "We're the essentials."

The flora covering the NIH stream banks, no-mow areas and reforested areas are not maintained. This helps filter run-off sediment before it hits the stream, reduces mower exhaust and creates a wildlife habitat.

More than 50 bird species have been spotted on the main campus. Dozens of bird boxes attract cavity-nesters to help reduce insects and insect-borne diseases. In spring, Mueller deploys volunteers to check on 89 bluebird boxes. Several more bird boxes will be placed around the Stoney Creek Pond this spring.

Last year, only 17 bluebirds fledged, he says. "Those terrible English sparrows filled up the houses. However, about 165 others fledged, including chickadees, house wrens and tree and barn swallows."

In addition to trees and birds, Mueller helps surveil the white-tail deer whose population continues to grow: "They originally came out of Rock Creek Park before the security fence was enclosed," he recalls. "They are now eating themselves out of house and home. But NIH is creative and we will find a solution, including planting only deer-resistant trees and shrubs."

Geese are outside ORF's bailiwick, but here's a reminder: It's illegal to harm a Canada goose or damage or move its eggs and nest without a federal permit. Fines can range up to \$10,000. Only ORS has permission to move the nests.

Females lay eggs from late March through early April. If you get too close, the male will charge, so give Father Gander lots of room. Please drive carefully as goose families cross our roads. Once the eggs hatch and the family moves on, the parents relax.

Maybe we could all relax. Whether mindfulness leads to serenity is an ancient question; it wouldn't hurt to practice as you walk the campus. Enjoy its beauty and the stewardship that maintains it. 🍀



*Scientists from NIH report that allergy prevalence is the same across different regions of the United States, except in children 5 years and younger.*

### **Prevalence of Allergies the Same, Regardless Of Where You Live**

In the largest, most comprehensive, nationwide study to examine the prevalence of allergies from early childhood to old age, scientists from NIH report that allergy prevalence is the same across different regions of the United States, except in children 5 years and younger.

"Before this study, if you would have asked 10 allergy specialists if allergy prevalence varied depending on where people live, all 10 of them would have said yes, because allergen exposures tend to be more common in certain regions of the U.S.," said Dr. Darryl Zeldin, NIEHS scientific director. "This study suggests that people prone to developing allergies are going to develop an allergy to whatever is in their environment. It's what people become allergic to that differs."

The research appeared online in the *Journal of Allergy and Clinical Immunology*.

Although the study found that the overall prevalence of allergies did not differ between regions, researchers discovered that one group of participants did exhibit a regional response to allergens. Among children ages 1-5, those from the southern U.S. displayed a higher prevalence of allergies than their peers living in other U.S. regions.

"The higher allergy prevalence among the youngest children in southern states seemed to be attributable to dust mites and cockroaches," said Dr. Paivi Salo, an epidemiologist in Zeldin's research group and lead author on the paper.

### **Researchers Find Reason Why Many Vein Grafts Fail**

NIH researchers have identified a biological pathway that contributes to the high rate of vein graft failure following bypass surgery. Using mouse models of bypass surgery, they showed that excess signaling via the transforming growth factor beta (TGF-beta) family causes the inner walls of the vein to become too thick, slowing down or sometimes even blocking the blood flow that the graft was intended to restore. Inhibition of the TGF-B signaling pathway reduced overgrowth in the grafted veins.

The team, led by Dr. Manfred Boehm, chief of the Laboratory of Cardiovascular Regenerative

Medicine, NHLBI, identified similar properties in samples of clogged human vein grafts, suggesting that select drugs might be used in reducing vein graft failure in humans.

This study was published Mar. 12 in *Science Translational Medicine*.

Bypass surgery to restore blood flow hindered by clogged arteries is a common procedure in the United States. The great saphenous vein, which is the large vein running up the length of the leg, often is used as the bypass conduit due to its size and the ease of removing a small segment. After grafting, the implanted vein remodels to become more arterial, as veins have thinner walls than arteries and can handle less blood pressure. However, the remodeling can go awry and the vein can become too thick, resulting in a recurrence of clogged blood flow. About 40 percent of vein grafts experience such a failure within 18 months of the operation.

### **High Plasticizer Levels in Males Linked to Delayed Pregnancy for Female Partners**

Women whose male partners have high concentrations of three common forms of phthalates—chemicals found in a wide range of consumer products—take longer to become pregnant than women in couples in which the male does not have high concentrations of the chemicals, according to researchers at NIH and other institutions.

The researchers assessed the concentrations of phthalates and bisphenol A (BPA) in couples trying to achieve pregnancy. Phthalates, sometimes known as plasticizers, are used in the manufacture of plastics, to make them more flexible. BPA is also used in plastics, including in some food and drink packaging.

According to the Centers for Disease Control and Prevention, phthalates are used in hundreds of products such as fragrances, shampoos, nail polish, plastic film and sheets. Pregnancy took the most time to achieve in couples in which the males had high concentrations of monomethyl phthalate, mono-butyl phthalate and monobenzyl phthalate.

Because the researchers examined only the time it took to achieve pregnancy, the study could not determine precisely how the compounds might affect fertility. Future studies, the authors wrote, would be needed to determine if the compounds affected particular aspects of reproductive health, such as hormone levels. The study was published online in the journal *Fertility and Sterility*.



# milestones

In a videotaped interview for NICHD's 50th anniversary in 2012, Cooke recounted his early involvement in the institute's creation.

"I was a good friend with Eunice Shriver and when the president was elected, before he took office, they put together a task force to look at health and social services for the new administration. And I got a telephone call one day asking me if I could serve on this task force."

The task force's report pointed out the lack of research on the physical, intellectual and emotional growth of children and recommended establishment of an organization to investigate disorders of human development, including intellectual and developmental disorders.

Following the report, and at the urging of Cooke, Shriver and others, President Kennedy signed legislation creating NICHD in 1962.

Afterwards, Cooke continued his involvement with the institute over the years. He served as a member of the National Advisory Child Health and Human Development Council, the NICHD intramural program's board of scientific councilors and the advisory board for NICHD's National Center for Medical Rehabilitation Research.

In his 2012 interview, Cooke concluded that NICHD had proven its value over its 50-year history:

"My feeling is that NICHD has made an enormous contribution to children in this country and, I think, to medicine in general," he said. "What you do for the child seems to make an enormous difference in his life."



*Dr. Robert E. Cooke (l) in 2012, with NICHD director Dr. Alan Guttmacher*

## Cooke, Driving Force Behind NICHD's Founding, Dies at 93

Dr. Robert E. Cooke, a member of the presidential task force that laid the groundwork for the founding of NICHD, died at his home on Martha's Vineyard on Feb. 2. He was 93 years old.

Cooke and Eunice Kennedy Shriver, sister of President John F. Kennedy, are considered by many to be the driving forces behind the establishment of the institute. Cooke served on a presidential committee, the recommendations of which led to the founding of Head Start, the pre-school education program established under President Lyndon Johnson to serve the early educational needs of children from low-income families.

"Dr. Cooke cared deeply about the health and well-being of children—those least able to make their needs known to our country's leadership," said Dr. Alan Guttmacher, NICHD director. "NICHD came into existence largely due to his foresight and determination and, to this day, serves as a tribute to his efforts. He will be greatly missed."

Two of Cooke's children were born with a genetic disorder, cri du chat syndrome, which is characterized by intellectual disability and delayed development. In the late 1950s, when Cooke was a professor and director of the department of pediatrics at Johns Hopkins Hospital, he began advising Shriver, who headed the Joseph P. Kennedy Jr. Foundation. The foundation is dedicated to working on issues related to intellectual and developmental disabilities.



*NIGMS director Dr. Jon Lorsch (third from l) welcomes the newest members of the NIGMS Council. Shown are (from l) Dr. Richard L. Lalonde, Dr. Gail E. Besner and Dr. Alan "Rick" Horwitz.*

## Three New Members Appointed to NIGMS Council

Three new members recently joined the National Advisory General Medical Sciences Council:

Dr. Gail E. Besner is the H. William Clatworthy, Jr. professor of surgery and chief of pediatric surgery at Nationwide Children's Hospital in Columbus, Oh., and a professor of surgery and pediatrics at Ohio State University College of Medicine.

Dr. Alan "Rick" Horwitz is the Harrison distinguished professor of cell biology and associate vice president for research and bioscience programs at the University of Virginia School of Medicine.

Dr. Richard L. Lalonde is vice president and global head of clinical pharmacology at Pfizer Inc. 

## Ultraviolet Light-Emitting Robot Helps Minimize Spread of Germs in CC

By Eric Bock

"It's like a tall R2-D2 robot from the *Star Wars* movies, disinfecting patients' rooms," said Rob Mekelburg, chief of the Clinical Center's materials management and environmental services department. He is referring to the ultraviolet light-emitting disinfection robot that the CC now uses to minimize the spread of multidrug-resistant bacteria.

Over time, bacteria become resistant to antibiotics intended to kill them. Eventually, a few stragglers that survived a course of antibiotics give rise to an entire race that can withstand treatments that eliminated most of their forbears. In fact, some kinds of resistant bacteria are now common in hospitals, where they pose a threat to patients with weakened immune systems.

As a safeguard against this scenario, the CC has begun using the robot to disinfect hospital rooms that may harbor such organisms.

"Disinfecting the environment is important in reducing health care-associated infections," said Amanda Ramsburg, an infection control specialist in the CC's Hospital Epidemiology Service. "The environment can play a significant role in germ transmission."

The Clinical Center uses a 2-step process to disinfect rooms, said Mekelburg. First, a technician uses a disinfectant solution to wipe down all surfaces a patient touches. Then, the robot is placed in the center of the room, any drawers are pulled open and any equipment in the room is positioned for maximum exposure to UV light.

Once it's on, the robot detects the size and reflectivity of the room, Mekelburg said. Based on this scan, the robot delivers the correct dose and duration of UV light needed to sterilize the room. The UV light remains on anywhere from 30 minutes to 2 hours, depending on the room and its contents. Because UV light can damage eyes and skin, the robot shuts off automatically if someone enters the room.

The robot, which stands 5' 5", does not replace the need to manually clean, said Ramsburg. Staff must clean any visible dirt or bodily fluids. Then the robot goes to work.

Use of the robot is part of a larger strategy to prevent health care-associated infections at the CC, said Ramsburg. After the *Klebsiella pneumoniae* carbapenemase (KPC) outbreak in 2011,



*An ultraviolet light-emitting 5-foot-5 robot is used to disinfect Clinical Center rooms.*

PHOTO: ERNIE BRANSON

the hospital improved infection control policies to prevent future outbreaks.

In addition to disinfecting rooms, staff screens every inpatient on admission to the CC for colonization of certain multidrug-resistant bacteria. Hospital staff and patients are required to perform hand hygiene frequently.

"We can't yet say definitively if the robot has had an effect," said Ramsburg. "But what we do know is that since improving our infection control practices, including environmental disinfection, we have not had transmission of the outbreak organism." 🗨️

## NINR Establishes Office of End-of-Life, Palliative Care Research

NINR, the lead NIH institute for end-of-life research, has established the Office of End-of-Life and Palliative Care Research (OEPCR), part of the Division of Extramural Science Programs. Dr. Jeri L. Miller, a former NIH intramural researcher with expertise in clinical practice and science policy, has been appointed chief of the office.

"NINR-supported end-of-life and palliative care research has led the way in addressing some of the most critical challenges in clinical care today," said NINR director Dr. Patricia Grady. "Through this new office, NINR will continue to advance end-of-life and palliative care science to build the evidence for clinical care."

OEPCR will support ongoing NINR research efforts in end-of-life and palliative care science, including stimulating research initiatives, creating opportunities for collaborative activities and facilitating interdisciplinary science. Miller will coordinate the development, implementation and evaluation of end-of-life and palliative care science in interdisciplinary collaboration with the senior leadership of NINR, other NIH institutes, federal research agencies, academia and other outside experts and constituencies.

The new office builds on work Miller led for the past 5 years, including a report titled "Building Momentum: The Science of End-of-Life and Palliative Care," which looks at trends in end-of-life and palliative care research publications over the past 14 years. It has information on federal research awards, funding patterns and the contributions of public and private investments.

NINR also sponsored several community events related to end-of-life science, including a trans-NIH national summit on "The Science of Compassion: Future Directions in End-of-Life and Palliative Care."



*Dr. Jeri L. Miller*